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A STUDY OF *ZENAIDA AURICULATA*

BY ELSIE M. B. NAUMBURG

INTRODUCTION

In working on the Kaempfer Collection from northeast Brazil, I had to identify certain doves from the genus *Zenaida*. It soon became evident that this group was much in need of revision, and the results of my studies are presented in the following paper.

In all races of the species *Zenaida auriculata*, females differ from the males in the generally duller coloration with less metallic gloss on nape and sides of neck; the rosy color on forehead, sides of head, and throat is dingier and shaded with buff; the gray on the posterior crown almost entirely concealed by brownish margins; the pinkish or vinaceous of the breast is more or less obscured by brownish edges; while the abdomen and under tail-coverts are at least partly buff.

Young birds are much duller in coloration than the adult female, the occiput is duller, the underparts are duller, and sometimes the coloration is very different from the adults. Wing-coverts and scapulars are edged terminally (sometimes more or less distinctly) with pale, wedge-shaped streaks or dull white. The chest-feathers of the juvenal birds also have paler edges and narrow wedge-shaped streaks and exhibit no reflection.

The tail is mostly moderate and rounded. The rectrices have a broad postmedian bar of black (except the middle pair of tail-feathers). The basal portion is darker gray or brown; the apical portion pale gray, cinnamon, rufous, or white.

There is always a bare orbital space beneath the eye, a black spot, more or less metallic, beneath the ear-coverts, and a black spot behind the eye. There are black spots on the innermost secondaries.

There are variations in color and size that distinguish specimens from different geographic areas. Racial characters are better developed in the male sex, females often being barely distinguishable.

The principal area of intergradation is found along the estuary of the Amazon, Marajó, Mexiana, and the coast of Maranhão. The race found there, *Zenaida auriculata marajoensis*, is intermediate between its geographical neighbors, combining the white apical tail-markings of one "species" with the deep vinaceous underparts of another.

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NOTES ON SOME BOMBYLIIDAE (DIPTERA) FROM PANAMA

BY REGINALD H. PAINTER[1]

The small collection of Bombyliidae reported upon in this paper was submitted to the writer for identification by Mr. C. H. Curran. In the case of some of the commoner species, only a few representatives of each have been seen. Additional specimens identified by Mr. Curran have been added to the list. Among the specimens are two representatives of an interesting new genus and species. A second species belonging in this same genus but collected in South America is also included. The types, except as indicated, have been deposited in The American Museum of Natural History.

NEODISCHISTUS, new genus

This new genus possesses characters of the subfamily Bombyliinae as defined by Bezzi, and the following.

Head much broader than high, somewhat broader than the thorax; occiput flat, ocelli rather widely separated; face and front in female quadrate in shape, the inner margins of the eyes parallel; eyes bare, in the female with facets of equal size, slightly emarginate behind; face short and somewhat prominent; genae very narrow; proboscis about three times as long as the head; palpi single jointed, minute. Eyes of male contiguous, facets of two sizes, the smaller below. Antennae inserted about two-thirds of the way between ocelli and oral margin, their bases close together; first joint cylindrical, more than one and one-half times the length of the second; third cylindrical, about twice the length of the first two taken together, notched near the apex and bearing a minute style near the proximal margin of this notch, first and second joints clothed with stiff hairs, the third with minute pile.

Thorax broad and short, somewhat convex above, clothed with broad flat scales and stiff hairs; bristles present but not strong. Metapleurae bare. Scutellum rather large with bristles around the posterior margin. Squamae of moderate size with fringe of hairs; halteres large. Body somewhat gibbous.

Abdomen triangular, somewhat longer than broad, a little broader than thorax at base, clothed with broad, flat, appressed scales and a few stiff hairs along margin of abdomen. Female genitalia clothed with many hooked hairs. Legs long, clothed with scales and weak spines; pulvilli present, nearly as long as claws. Wings, in known species, hyaline; venation somewhat similar to *Sparnopolius*. R-m cross-vein at basal fourth of discal cell, making cells R and M of nearly equal length. Three interradials (two submarginal cells); R_5 open: cells M, second M_2 and Cu_1 present; anal cell widely open.

GENOTYPE.—*Neodischistus currani*, new species.

[1]Contribution No. 410 from the Department of Entomology, Kansas State College, Manhattan, Kansas.

In the Temperate Zone of the Magdalena, *Zenaida auriculata antioquiae* appears to replace the Tropical Zone race, *Zenaida auriculata rubripes*, just as *Zenaida auriculata ruficauda* does in the Temperate Zone of the eastern Colombian Andes, both being altitudinal representatives. The upper Cauca form with white tail-tips and under tail-coverts is much nearer the Ecuadorian and Peruvian form, *Zenaida auriculata hypoleuca*, this being quite plausible from a geographical point of view. The fact that *Zenaida auriculata antioquiae* is found west of the lower Magdalena is no obstacle for considering the various forms as members of one taxonomic unit.

The task of writing this paper and identifying the specimens was not easy because the series available was small, and much of the value of this revision may be credited to the assistance given me by Dr. C. E. Hellmayr.

The writer went to Vienna in September, 1932, to verify some statements made in this paper and to examine and measure additional specimens.

Zenaida auriculata auriculata (Des Murs)

Peristera auriculata Des Murs, 1847, in Gay, 'Hist. Fis. Pol. Chile,' Zool., I, p. 381, Pl. VI (Chile); "en las provincias centrales de la República." I suggest Santiago as type locality.[1]

Subspecific Characters.—Characterized chiefly by its large size, and in the male sex by almost uniform vinaceous underparts, the abdomen as well as the breast being of this color. Under tail-coverts white.

Range.—Chile: from Atacama south at least to the Rio Aysen.

Specimens Collected

Kaempfer Collection

Northeast Paraguay: Dept. Concepción, Zanja Moroti (alt. 1000 ft.), 1 ♂ ad., Sept. 8, 1930.

Rio Grande do Sul: Palmares (sea-level), 2 ♂, 1 ♀ ad., Oct. 13, 1928, 1 ♀ ad., Oct. 7, 1928; Candiota, 1 ♂ ad., Sept. 9, 1931.

Measurements

	Sex	Wing	Tail	Exposed Culmen	Coll.	Mus.
Chile: Tofo, north of Coquimbo	♂ ad.	159.5	103	14.5	Hallinan	A.M.N.H
" " " " "	♂ "	154	95	14	"	"
" " " " "	♀ "	140	85	15	"	"
" Prov. Santiago	♂ "	160	105	14	Davila	Vienna[2]
" Romero, Prov. Coquimbo	♂ "	146	91.5	15	Conover	Field

[1]Middle of the range.
[2]One immature female was examined in the Vienna Museum from Chile (Desague, Prov. Llanguhue).

	Sex	Wing	Tail	Exposed Culmen	Coll.	Mus.
Chile: Hacienda Cauquenes, Prov. Colchagua	♂ im.	143.5	89.5	15	Conover	Field
" " " "	♂ "	144	93.5	14.5	"	"
" " " "	♀ ad.	148	97	15	"	"
" " " "	♀ "	145	98	15	"	"
" " " "	♀ im.	140.5	83	15.5	"	"
" Rio Nirehuau, Casa de Richards, Prov. Llanquihue	♂ im.	152.5	95	15	"	"
" " " "	♂ "	147.5	87	15.5	"	"
" " " "	♂ "	150	85	17.5	"	"
" " " "	♀ "	151	103.5	14	"	"
" Rio Cohaique, Estancia Asien, Prov. Llanquihue[1]	♂ ad.	151	101.5	15	"	"
" Concepción, Prov. Concepción	♂ "	152.5	97	15	"	"
" Concon, Prov. Valparaiso	♀ "	142.5	92	16	"	"
Argentina: Tunuyán, Prov. Mendoza	♂ "	144	95.5	15	"	"
" " "	♂ "	142.5	97	16	"	"
" " "	♀ "	146	84	14	"	"

Zenaida auriculata virgata Bertoni

Zenaida virgata Bertoni, 1901, Anal. Cient. Parag., I, p. 24; Alto Paraná, Paraguay.

Zenaida maculata Pelzeln, 1870, 'Orn. Bras.,' III, p. 276; São Paulo, Paraná, and Matto Grosso.

Subspecific Characters.—Smaller than typical *auriculata;* anterior underparts in the male sex deeper vinaceous, becoming paler posteriorly and passing into buffy white on under tail-coverts.

Range.—Bolivia; Argentina; Paraguay; Uruguay; and southern Brazil, from Rio Grande do Sul north to São Paulo, Minas Geraës, and Matto Grosso.

Measurements

	Sex	Wing	Tail	Exposed Culmen	Coll.	Mus.
Paraguay: Fort Wheeler	♀ ad.	132.5	82	16	Roos.	A.M.N.H.
" Trinidad	♀ "	134	80	15	"	"
Brazil: Matto Grosso Chapada	♂ "	133	83	15	Smith	"
" " " "	♀ "	139	82.5	15	"	"
" Villa Bella de Matto Grosso	♂ "	134	93	15	Natterer	Vienna
" Matto Grosso, Cuyabá	♂ "	138	94	14	"	"

[1]Birds from Mendoza (Tunuyán) appear to be identical with the Chilean form.

	Sex	Wing	Tail	Exposed Culmen	Coll.	Mus.
Brazil: Minas Geraës, Lagôa Santa	♂ ad.	143	84	14	Lund	Zool. Mus.[1] Copenhagen
" " " "	♀ "	132	82	14	"	" " "
Bolivia: Parotani, Prov. Cochabamba	♂ "	153	93	14	Collins-Day	A.M.N.H.
" California, Prov. Santa Cruz	♂ "	152	102	16	Miller-Boyle	"
" Vermejo, Santa Cruz	♂ "	140	87	15	"	"
" Vinto, Prov. Cochabamba	♂ "	145	93.5	14	"	"
N. E. Paraguay: Dept. Concepción, Zanja Moroti	♂ "	143	92	16	"	"
Argentina: Mendoza	♂ "	152	97	16	Dinelli	"
" "	♂ "	150	94	16.5	"	"
" La Plata	♂ "	142	87	15	"	"
" "	♂ "	135	84.5	15	"	"
" Mar del Plata	♂ "	146	91	14.5	Beck	"
" Buenos Aires	♂ "	146	92	16	Chapman–Miller	
" " "	♂ "	142	87	15	" "	
" Rosario de Lerma, Prov. de Salta	♂ "	145	93	[2]	Miller-Boyle	"
" Tafi del Valle, Prov. Tucuman	♂ "	150	95.5	14.5	"	"
Brazil: Rio Grande do Sul, Palmares	♂ "	144	82	15	Kaempfer	A.M.N.H.
" " " "	♂ "	140	93.5	15	"	"
" " " "	♀ "	141	90.5	14	"	"
" " " "	♀ "	139	86	14	"	"
" Rio Grande do Sul, Candiota	♂ "	141.5	88.5	14.5	"	"
" " " "	♂ "	136	100	16	Natterer	Vienna
" " " "	♀ "	138	95	15	"	"
" Parana, Curytiba	♂ "	136	94	15	"	"
" " "	♂ "	136	86	17	"	"
" " "	♀ "	129	90	14.5	"	"
" " Rio Boraxado	♂ "	133.5	98	14.5	"	"
" " "	♀ "	133	91	17	"	"

[1]Through the courtesy of Prof. R. Hørring, of the Zoological Museum in Copenhagen, who sent me two specimens from Lagôa Santa, Minas Geraës, I was able to compare these specimens with our series of *Zenaida auriculata virgata* with which they agree.

[2]Culmen broken.

Zenaida auriculata noronha Chubb

Zenaida auriculata noronha Chubb, 1919, Ibis, I, p. 36 (Fernando Noronha Island).

Subspecific Characters.—About the same size as *Z. a. virgata*, but anterior underparts of males decidedly paler vinaceous pink, and abdomen, like under tail-coverts, entirely or for the greater part buff or buffy white; females hardly distinguishable.

Range.—Northeastern Brazil, in State of Bahia, interior of Piauhy and Maranhão, and Fernando Noronha Island.

Specimens Collected

Kaempfer Collection

Maranhão: Flores, on the Rio Parnahyba, 1 ♂, Sept. 30, 1926. Piauhy: Corrente (alt. 1500 ft.), 2 ♂ ad., June 4 and 9, 1927. Bahia: Barra do Rio Grande (alt. 1400 ft.), 3 ♂ ad., April 20, 21, 28, 1927, 1 ♀ ad., May 14, 1927; Santa Rita do Rio Preto (alt. 1600 ft.), 1 ♂ ad., 1 ♀ ad., Aug. 14, 1927.

Measurements

	Sex	Wing	Tail	Exposed Culmen	Coll.	Mus.
Brazil: Maranhão, Flores	♂ ad.	138	85.5	14.5	Kaempfer	A.M.N.H.
" Piauhy Corrente [alt. 1500 ft.)	♂ "	134	80	15.5	"	"
" " " "	♂ "	130	79	14	"	"
" Bahia, Barra do Rio Grande (alt. 1400 ft.)	♂ "	136.5	83	15.5	"	"
" " " "	♂ "	131.5	80	15	"	"
" " " "	♂ "	130	76.5	15	"	"
" Santa Rita do Rio Preto (alt. 1600 ft.)	♂ "	136	81.5	15	"	"
" Fernando Noronha Isl.[1]	♂ "	135	87	16	Murphy	"
" " " "	♂ "	138	83	17	"	"
" Bahia, Piripiri near Joazeriro	♂ "	130	85	16.5	Reiser	Vienna
" " Joazeiro	♂ "	131	70	18	"	"
" Piauhy, San Antonio de Gilbuez	♀ "	131	89	15	"	"
" Piauhy, south end of Lake Parnaguá	♀ "	128	81	16	"	"
" Piauhy, Pedrinha, Lake Parnaguá	juv. ♂	132	85	15	"	"
" Piauhy, Ibiapaba	♂ "	139.5	82	15	H. Snethlage	Field
" " Arara	♂ "	135	81.5	15	"	"
" " "	♂ "	135	81	15	"	"
" Bahia, Rio do Peixe near Queimadas,	♂ "	136	85.5	14.5	R. H. Becker	"
" " " "	♂ "	131	80	15	"	"
" " " "	♀ "	132	80.5	16	"	"

[1]Dr. Hellmayr has examined two males in the British Museum from Fernando Noronha: wing, 135, 138; tail, 80, 86.

JUVENAL PLUMAGE

A young male in the Vienna Museum (Reiser Coll.), No. 768, has the feathers of the upperparts with white wedge-shaped edges. The primaries and primary coverts have the same white wedge-shaped marks.

Another young bird, No. 780, lacks all wedge-shaped white marks to the edges of the feathers. This bird differs from the normal juvenal plumage by having the chest-feathers sooty with pale cinnamon shaft-streak and apical margin. It appears to be an abnormal plumage as was already noted by the collector, Mr. Othmar Reiser. This may be melanistic, as sometimes occurs in pigeons.

Zenaida auriculata marajoensis Berlepsch

Zenaida jessieae marajoensis BERLEPSCH, 1913, Ornith. Monatsber., XXI, p. 149 (Hacienda São André, Island of Marajó; type in Senckenbergian Mus. Frankfurt, examined).

Zenaida iessieae consp. nov., E. SNETHLAGE, 1911–1912, Bol. Mus. Goeldi, VIII, p. 64 (Marajó).

SUBSPECIFIC CHARACTERS.—Slightly smaller than *Z. a. noronha*, and much deeper vinaceous below, this color extending all over the abdomen and under tail-coverts.

RANGE.—Estuary of the Amazon, from Marajó and Mexiana to coast of Maranhão, (Anil, Ilha do São Luiz).

SPECIMENS COLLECTED

Maranhão; Anil, Ilha São Luiz, 2 ♂ ad., 1 ♀ ad., 2 sex (?), Feb. 23, 24, 26, 1916; Emil Kaempfer.

Zenaida a . marajoensis is closely related to *Z. a. jessieae*, but has the tips of the four lateral pairs of rectrices nearly pure white, at best with a narrow grayish outer margin. It approaches *Z. a. noronha* in coloration of tail-tips, but is decidedly deeper vinaceous underneath, and the males lack the buff on lower abdomen and tail-coverts, these parts being merely somewhat paler vinaceous than the breast. It will thus be seen that this race is intermediate between its geographical neighbors, combining the white apical tail markings of *noronha* with the deep vinaceous underparts of *jessieae*.

Count Berlepsch laid much stress on the presence of the black post-ocular streak that, according to him, served to distinguish *marajoensis* and *jessieae* from what he calls *Z. auriculata* (comprising *auriculata* and *noronha* of the present paper). Dr. Hellmayr says that, while this streak is well marked in all the specimens from northern Maranhão and lower Amazonia and frequently absent in the more southern forms, there are nevertheless a good many individuals from southern Brazil, Argentina,

etc., that cannot be separated by this character from northern examples, and it would therefore appear that it is only of relative value.

This well-defined form is not an island race, but seems to be distributed from the islands in the estuary of the Amazon through the coastal districts of Pará and Maranhão.

Measurements

	Sex	Wing	Tail	Exposed Culmen	Coll.	Mus.
Brazil: Maranhão, Anil, Ilha São Luiz	♂ ad.	135	88	15	Kaempfer	A.M.N.H.
" " " "	♂ "	131	84.5	15	"	"
" " " "	♀ "	127	77	14	"	"
" " " "	?	127	73	16.5	"	"
" " " "	?	129	76.5	15	"	"
Isle of Marajó: San Natal	♂ "	135	82	14		Munich
" " " " "	♂ "	132	80	15		"
" " " " "	♀ "	125	76	14		"
" " " Hacienda St. André (type)	♂ "	135	87[1]	15	Bluntschli-Payer	Frankfurt
" " " " "	♀ "	125	79	15	"	"
" " " Boa Vista	♂ "	135	87	16		Tring
Brazil: Pará	♀ "	132	80	15		British

Zenaida auriculata jessieae Ridgway

Zenaida jessieae (Riker MS.) Ridgway, 1887, Proc. U. S. Nat. Mus., X, p. 527; (Diamantina), near Santarem east of mouth of Rio Tapajóz, Brazil.

Zenaida iessieae Snethlage, 1914, Bol. Mus. Goeldi, VIII, p. 63 (Ereré).

Subspecific Characters.—Similar to *Z. auriculata marajoensis* in deep vinaceous underparts, but terminal portion of lateral rectrices tinged with pinkish or pale vinaceous instead of white.

Range.—Banks of the lower Amazon (Santarem, Diamantina, and Paricatúba), south bank; Ereré, near Montalegre, north bank.

This form, though very close to *Z. a. marajoensis*, is apparently separable by the coloration of the tail-tips which are tinged with delicate rose-color on the two outermost pairs of rectrices, gray shaded with pale vinaceous on the third, and dark gray on the fourth; whereas, in the allied race, the corresponding portion of the four lateral pairs is white with little, if any, gray along the external margin. The underparts are deep vinaceous down to the abdomen, passing into pinkish buff in the middle of the lower belly in the female sex, just as in *Z. a. marajoensis*. However slight, the difference pointed out above seems to have geo-

[1]Tail in bad condition when examined in Frankfurt (Senck. Naturwiss. Gesell.)

graphical significance, inasmuch as the vinaceous tinge on the apical portion of the tail marks a decided step in the direction of the next form. *Z. a. jessieae* obviously replaces the preceding race (*marajoensis*) on the banks of the lower Amazon wherever there are stretches of open country.

From information sent to me by Dr. C. E. Hellmayr, it was first recorded by Allen[1] under the erroneous name *Z. ruficauda* from Santarem, where Linden met with it in small flocks on the campo, but its distinctness was not recognized until 1887 when Riker forwarded three specimens from Diamantina, in the vicinity of Santarem, to the U. S. National Museum. W. A. Schulz obtained a single example at Paricatúba, on the south bank of the Amazon, a little west to the junction of the Tapajóz. However, this dove also occurs on the opposite side of the Amazon, since a female secured by O. Martins at Ereré near Montalegre (north bank) was found by Hellmayr to be identical with birds from near Santarem.

Measurements

		Sex	Wing	Tail	Exposed Culmen	Coll.	Mus.
Brazil: Santarem, Rio Amazon		♂ ad.	127.5	85	13.5		Carnegie
" " " "		♂ "	132.5	85.5	14		"
" " " "		♀ "	134.5	85.5	15		"
" " " "		♀ "	132	85.5	13.5		"
" Paricatúba, " "		♀ "	132	81	15	Schulz	Frankfurt
" Ereré " "		♀ "	130.5	78.5	14	Paraense Riker	Goeldi
" Diamantina, Rio Tapajóz		♂ "	131	77.5	15	"	U. S. Nat.
" " (type)		?	130	72	15	"	"
" "		?	123	80.5	15		"

Zenaida auriculata rubripes Lawrence

Zenaida rubripes Lawrence, 1885, The Auk, II, p. 357 (Grenada, Lesser Antilles).

Zenaida ruficauda robinsoni Ridgway, 1915, Proc. Biol. Soc. Wash., XXVIII, p. 107 (Honda, Colombia).

Subspecific Characters.—About the same size as *Z. a. jessieae*, and underparts from lower throat to tail-coverts very nearly as deep vinaceous but terminal portions of five lateral rectrices bright vinaceous cinnamon. Besides, chin and middle of upper throat are paler (from light pinkish buff to buffy white), and the dorsal surface is slightly paler brown. Differs from *Z. a. vinaceo-rufa* in being darker brown above and deeper vinaceous below with a cinnamomeous tinge, and in having a buff instead of a clear and well-defined white chin-spot.

[1] 1876, Bull. Essex Inst., VIII, p. 82.

RANGE.—Southern Lesser Antilles (Grenada, Glover's Island,[1] Carriacou)[2]; British Guiana (Annai, Quonga); Venezuela, from the north coast including Margarita Island, south to the Orinoco River and its tributaries; extreme northern Brazil (upper Rio Branco); eastern Colombia (Honda and Chicoral, Magdalena Valley).

Ridgeway,[3] who originally based the description of *Z. r. robinsoni* upon specimens from Honda, Magdalena Valley, subsequently gave its range as comprising the "interior districts of Colombia and Venezuela," whereas the "arid coast" of Venezuela and the islands of Margarita, Curaçao, Aruba, Bonaire, Grenada, and Carriacou were indicated as constituting the distributional area of *Z. r. vinaceo-rufa*, the type of which came from Curaçao. The difference between the two races was stated to consist of the intensity of coloration, *robinsoni* being darker, more brownish above and more vinaceous below.

Critical examination of large series of these doves, however, tends to show that such an arrangement does not correctly express actual conditions. Birds from the Venezuelan coast district (Barquisimeto and El Cuji, Estado Lara) and Margarita Island are nowise different from others collected on the banks of the Orinoco and Caura rivers and, furthermore, agree in size and coloration with a series from the southern Lesser Antilles (*Z. rubripes*). Even topotypical specimens of *Z. r. robinsoni* from the Magdalena Valley are inseparable, though one would naturally expect to find another race in this part of Colombia. The earliest name of this form thus is *Zenaida auriculata rubripes*, of which *Zenaida ruficauda robinsoni* becomes a synonym.

The large series from the Dutch West Indies (Curaçao, Aruba, Bonaire) courteously loaned by the Field Museum of Natural History averages lighter and clearer in color than the bird I now call *Zenaida auriculata rubripes*, the latter being much deeper vinaceous below, though varying in degree of intensity. The paler brown upperparts constitute an absolutely constant character of *Z. a. vinaceo-rufa* as restricted here to the Dutch West Indies.

Nevertheless, individual variation occasionally obliterates the distinctive features, and a specimen from Caicara, Rio Orinoco, a bird in very fresh and unworn plumage, is practically indistinguishable from Bonaire and Curaçao examples. An individual from Agua Salada de Ciudad Bolivar, Orinoco, is much the darkest in the whole series, but

[1]Cf. Wells, 1887, Proc. U. S. Nat. Mus., IX, p. 624. It is inconceivable why the Grenada people call this dove "Trinidad ground dove" since no dove of this section ever occurred on Trinidad. (Note given to me by Dr. C. E. Hellmayr.)

[2]Cf. Austin H. Clark, 1905, 'Birds of the Southern Lesser Antilles,' Proc. Boston Soc. Nat. Hist., XXXII, No. 7, pp. 203–312.

[3]Bull. U. S. Nat. Mus., L, part 7, p. 356.

close inspection shows this to be caused by grease, the bird having been exceedingly fat when killed.

Birds from the upper Rio Branco[1] are, so far as coloration is concerned, identical with the Venezuelan series, but average very slightly smaller.

No material has been available from the Mérida region of Venezuela, but the doves from this section are not likely to be different from *Z. a. rubripes.*

Measurements

	Sex	Wing	Tail	Exposed Culmen	Coll.	Mus.
Lesser Antilles: Beausejour Flat	♂ ad.	130	91	14		Vienna
" " " "	♂ "	132	85	13.5		Comp. Zool.
" " " "	♂ "	130	83	14.5		"
" " " "	♂ "	133.5	87	15		"
" " " "	♀ "	130	86.5	15		"
" " " "						
Carriacou	♂ "	139	89	15	F. F. Dall	Frankfurt
" " " "	♂ "	137	87	15		"
" " " "	♂ "	138	87.5	16.5		"
" " " "	♀ "	134	85.5	15.5		"
" " " "	♀ "	135	82.5	14.5		"
Island of Trinidad[2]: Caroni Swamp	?	131	85	14.5	G. D. Smooker	U.S.Nat.
Lesser Antilles: Grenada, Pt. Sabine	♀ "	130.5	85.5	13		A.M.N.H.
" " Grenada	♂ "	138.5	90	15		"
" " "	♂ "	136.5	86	13.5		Field
" " "	♂ "	136	81.5	15		"
British Guiana: Annai, Quonga,	♂ "	128	80	14	Whitely	Frankfurt
" " " "	♂ "	125	85.5	14	"	U.S. Nat.
Venezuela: Maripa, Caura River	♂ "	127	90	14.5	Klages	A.M.N.H.
" Cuidad Bolivar, Orinoco	♂ "	135	86.5	15	"	"
" Agua Salada de Ciudad Bolivar, Orinoco	♂ "	135	94	15	Cherrie	"
" Caicara, Rio Orinoco	♂ "	132	88.5	13	"	"
" " "	♀ "	136	85	15	"	"

[1]Birds from the interior of British Guiana (Annai, Quonga) resemble those from the Rio Branco in size and coloration.

[2]According to Dr. Alexander Wetmore the specimen from the Caroni Swamp, Trinidad, was taken May 27, 1932, with a set of two eggs, by G. D. Smooker and was presented by him to the U. S. Nat. Mus. It is generally similar to the specimens from the mainland of Venezuela except as it appears somewhat grayer on the back, rump, and wing-coverts. With only one specimen at hand fromTrinidad it would seem that this difference is probably individual variation. Mr. Smooker's specimen is of particular interest since at this time it is the only one reported from the Island of Trinidad, the locality from which these birds were supposed to be absent.

	Sex	Wing	Tail	Exposed Culmen	Coll.	Mus.
Venezuela: Barquisimeto, Estado Lara	♂ ad.	136	85	15	Cherrie	A.M.N.H.
" " " "	♂ "	132	85	15	"	"
" El Cuji, Estado Lara	♂ "	143	90	15	"	"
Colombia: Honda	♂ "	133	88.5	15.5	Chapman-	"
" "	♂ "	136	92.5	15	Cherrie	"
" "	♂ "	131.5	87.5	15	"	U.S. Nat.
" " (type)	♂ "	142.5	85	16.5	"	"
" Chicoral, Coello River, Tolima	♂ "	136.5	80	15	" Allen-Miller	A.M.N.H.
" Margarita Island	♂ "	138.5	93.5	14		Field
" " "	♂ "	140	89	16.5		U. S. Nat.
" " "	♂ "	138.5	91	[1]		"
" " "	♂ "	138	90.5	14.5		"
" " "	♀ "	140.5	80.5	14.5		"
Brazil: Boa Vista, Rio Branco	♂ "	132.5	85.5	15		Field
" " " " "	♂ "	131.5	76.5	15.5		"
" " " " "	♂ "	127	77	15		"
" Forte de Rio Branco	♂ "	129	90.5	14	Natterer	Vienna
" " " " "	♂ "	128	93	13.5	"	"
" " " " "	♂ "	127.5	90	15	"	"
" " " " "	♀ "	126.5	91	16.5	"	"
" " " " "	♀ "	127	93.5	15.5	"	"

Zenaida auriculata vinaceo-rufa Ridgway

Zenaida vinaceo-rufa Ridgway, 1884, Proc. U. S. Nat. Mus., VII, p. 176 (Curaçao Island, Dutch West Indies).

Subspecific Characters.—Coloration paler throughout, considerably less brownish above and less deeply vinaceous below than *Z. a. rubripes*, with a clear white instead of a pale buffy chin-spot.

Range.—Dutch West Indies (Curaçao, Aruba, Bonaire).

This subspecies has the underparts pale vinaceous without a trace of cinnamon. The chin-spot is white and the upperparts are pale brown, both of these characters appearing to be quite constant, whereas the pale vinaceous color of the underparts is a variable character.

[1]Bill broken.

Measurements

	Sex	Wing	Tail	Exposed Culmen	Mus.
Dutch West Indies: Bonaire Island	♂ ad.	132	100	16	A.M.N.H.
" " " " "	♂ "	134.5	91.5	14.5	Field
" " " " "	♂ "	134	88.5	[1]	"
" " " " "	♂ "	135	89	14.5	"
" " " " "	♂ "	137	87	14.5	"
" " " " "	♂ "	134	86	14.5	"
" " " " "	♂ "	132	95	13.5	"
" " " " "	♂ "	137.5	91.5	14.5	"
" " " " "	♀ "	125	80.5	14	"
" " " Curaçao	♂ "	137.5	87.5	15	"
" " " "	♂ "	134	91.5	15	"
" " " "	♂ "	131.5	85.5	16.5	"
" " " "	♀ "	127	84.5	13	"
" " " "	♀ "	131	81.5	14.5	"
" " " Aruba	♂ "	132	80.5	15.5	"
" " " "	♂ "	136	92.5	15.5	"
" " " "	♂ "	133.5	88	14	"
" " " "	♂ "	135	95	15.5	"

Zenaida auriculata antioquiae Chapman

Zenaida auriculata antioquiae Chapman, 1917, Bull. Amer. Mus. Nat. Hist., XXXVI, p. 207 (Central Andes, Antioquia).

Subspecific Characters.—Similar to *Z. a. rubripes*, but terminal portion of rectrices paler vinaceous-buff; dorsal surface decidedly darker brown; and dimensions considerably larger. Not unlike *Z. a. ruficauda*, but smaller; posterior underparts much more vinaceous, about the same color as the breast, instead of orange-cinnamon.

Range.—Temperate Zone of the northern end of the central Andes of Colombia, in State of Antioquia (Barro Blanco, Retiro, La Ceja, etc.).

The occurrence of this form west of the lower Magdalena does not affect the idea of considering the various forms as members of one taxonomic unit. Barro Blanco and La Ceja are in the Temperate Zone, where *antioquiae* appears to replace the Tropical Zone *rubripes*, just as *ruficauda* does in the Temperate Zone of the east Colombian Andes.

Measurements

	Sex	Wing	Tail	Exposed Culmen	Coll.	Mus.
Colombia: Barro Blanco, Antioquia (alt. 7200 ft.)	♂ ad.	148.5	104	17	Miller-	A.M.N.H.
" " " " " "	♂ "	147.5	103	15.5	Boyle	"
" La Ceja	♂ "	143	96.5	14	"	"

[1]Culmen broken.

Zenaida auriculata ruficauda Bonaparte

Zenaida ruficauda Bonaparte, 1854, 'Consp. Av.,' II, p. 83 (New Grenada; type in British Museum).

Zenaida pentheria Bonaparte, 1854, 'Consp. Av.,' II, p. 84 ("Santa Marta," errore; type in Paris Museum).

Zenaida bogotensis Lawrence, 1885, The Auk, p. 358 (Bogotá; type in A.M.N.H.).

Subspecific Characters.—Nearest to *Z. a. antioquiae*, but somewhat larger; terminal portion of rectrices orange-cinnamon instead of vinaceous; abdomen and under tail-coverts bright cinnamon, decidedly more rufous than the vinaceous breast. Easily distinguishable from *Zenaida a. rubripes* by much larger size, darker brown upperparts, orange-cinnamon instead of vinaceous buff tail-tips, and much deeper and more rufous (less vinaceous) posterior underparts.

Range.—Temperate Zone of the eastern Andes of Colombia, in State of Cundinamarca (Bogotá savanna).[1]

Though up to this time of writing *Z. ruficauda* has been considered specifically distinct from *Z. a. auriculata*, I have come to the conclusion that *Z. ruficauda* is only a geographic race in Colombia of *Z. a. auriculata*. The distinguishing character of *Z. a. ruficauda* lies in the terminal portion of the outer tail-feathers being decidedly rufous instead of white, as in *Z. a. auriculata*. *Z. a. ruficauda* is also larger.

Compared with *Z. a. vinaceo-rufa* from the Dutch West Indies, *Z. a. ruficauda* is also larger, with the under tail-coverts cinnamon without any vinaceous tinge, whereas *Z. a. rubripes* has all the lower parts distinctly vinaceous.

Two forms of this species occur in the Bogotá region, one in the semi-arid Tropical Zone of the upper Magdalena Valley (*Zenaida a. robinsoni* = *Zenaida a. rubripes*) the other a bird of the Temperate Zone. Common on the Bogotá savanna (*Z. a. ruficauda*).[2]

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[1]It is possible that its range extends to the Mérida region of Venezuela. I have not been able to procure any material from any museum. There is a record of a young bird in the British Museum.

[2]Dr. Hellmayr writes that *Z. pentheria* Bonaparte corresponds to the form here named *Z. a. ruficauda*. On comparing the type in the Paris Museum with topotypes of both *antioquiae* and "*robinsoni*" and specimens from the Bogotá savanna he found it to agree with the last-named in dimensions (wing, 158; tail 110; bill, 16 mm.), as well as in coloration (orange-cinnamon tail-tips; deep bright cinnamon lower abdomen and under tail-coverts, etc.).

Although Bonaparte gives its habitat "Santa Marta," the type bears no other locality than "Colombia" and the catalogue of entry in the Paris Museum does not supply any additional information. The collector, Mr. Fontainier, presented to the French National Collection birds from various parts of Colombia. Bonaparte (1856, C. R. Acad. Sci., XLIII, p. 946) explained how the mistake of describing the same form twice under different names originated. From the measurements of the type, as given by Chapman, (Bull. Amer. Mus. Nat. Hist., 1917, XXXVI, p. 207), on the late C. Chubb's authority, it is evident that *Z. ruficauda* pertains to the large Temperate Zone race of the eastern Andes, which was subsequently redescribed as *Z. pentheria* and *Z. bogotensis*, respectively.

Measurements[1]

	Sex	Wing	Tail	Exposed Culmen	Coll.	Mus.
Colombia: Bogotá (type)	?	159.5	112	16	A. Maria	A.M.N.H.
" "	?	159	110	16	"	"
" "	?	156	113	16	"	"
" " Pipiral	?	150.5	110	17.5	"	"
" " (savanna), E. Andes	♀ ad.	143	78.5	16.5	"	"
" " " "	♀ "	153	105	15	"	"

Zenaida auriculata caucae Chapman

Zenaida auriculata caucae Chapman, 1921, Amer. Mus. Novitates, No. 31, p. 1 (Cali, Colombia).

Subspecific Characters.—Similar to *Z. a. auriculata* but smaller in size, darker brown above, and underparts deeper vinaceous; under tail-coverts buffy vinaceous, as in *Zenaida a. auriculata.*

Range.—Colombia: Cauca, Cali.

In the Cauca Valley a return to the Chilean form is made, the bird having the abdomen vinaceous as in typical *Z. a. auriculata* and closely resembling that race, except in being slightly smaller. This upper Cauca form (*Z. a. caucae*) with white tail-tips and under tail-coverts is also near *hypoleuca*, this being quite plausible from a geographical point of view. On comparing the birds from Cauca (Cali) with three specimens of *Zenaida auriculata auriculata* from Argentina, Tunuyán, Province of Mendoza, I found the Colombian specimen practically indistinguishable, averaging slightly smaller, however. Birds from the Cauca Valley differ from *Zenaida auriculata hypoleuca* in being darker vinaceous on forehead, sides of the head, and breast, as well as in the deeper olive-brown color of the upperparts; flanks, axillaries, and under wing-coverts are darker gray; abdomen, crissum, and under tail-coverts have a deeper vinous tinge. The birds from Cauca also average smaller in size.

Measurements[2]

	Sex	Wing	Tail	Exposed Culmen	Coll.	Mus.
Colombia: Cauca, Cali (3600 ft.)	♂ ad.	143	98	13	Richardson-	A.M.N.H.
" " " " "	♂ "	138.5	95	14.5	Miller	"
" " " " "	♀ "	133.5	87	15.5	"	"

[1] *Zenaida pentheria:* sex, ♂; wing, 157; tail, 110; culmen, 16; Paris Mus.
" " type: sex, (?); wing, 158; tail, 110; culmen, 16; Paris Mus.

[2] The central tail-feathers are slightly more pointed than those of *Zenaida a. auriculata.*

Zenaida auriculata hypoleuca Bonaparte

Zenaida hypoleuca Bonaparte, 1854, 'Consp. Av.,' II, p. 83 ("Pearl Island"; errore; = Guayaquil, western Ecuador).

Zenaida auriculata pallens Bangs and Noble, 1918, The Auk, XXXV, p. 446 (Huancabamba, N. E. Peru).

Subspecific Characters.—Slightly smaller than *Zenaida auriculata*, with forehead, sides of head, and breast paler, the vinaceous color of neck and breast much lighter and more pinkish; flanks, axillaries, and under wing-coverts paler gray; abdomen, crissum, and under tail-coverts much paler buff, only slightly tinged with vinaceous, producing an almost whitish color. Upperparts slightly paler gray-olive instead of brown-olive.

Range.—From Ecuador down to Huánuco, Peru.

Measurements

		Sex	Wing	Tail	Exposed Culmen	Coll.	Mus.
Peru: Prov. Lima, Huacho,	♂	ad.	147	105	15.5	Watkins	A.M.N.H.
" " " "	♂	"	147	103	16	"	"
" " " Huaral	♂	"	148	97	15	"	"
" " " "	♂	"	155	111	15	"	"
" " " "	♂	"	147	101	14	"	"
" " " "	♂	"	146	101	14.5	"	"
" " " Sayana	♂	"	147	98	14.5	"	"
" " " Vitarte	♂	"	146	96	14	"	"
" " " "	♂	"	148	97	15	"	"
" " " La Libertad, Poroto	♂	"	142.5	100	[1]	"	"
Ecuador: Isla de Puna	♂	"	145	102	15	Richardson	"
" Celica, Prov. de Loja	♂	"	141	99	16	"	"
" Bestion, Prov. del Azuay	♂	"	143.5	95	15	"	"
" " " "	♂	"	146	106.5	16	"	"
" Santa Elena, Prov. de Guayas	♂	"	144	[1]	[1]	Gill	"
" Valle de Cumbaza, Mt. Chimborazo	♂	"	146	[1]	[1]	Richardson	"
" Rio Bindo, Prov. del Oro	♂	"	143	98	15	"	"

[1]Broken.